FESHM 8040.1: POLYCHLORINATED BIPHENYLS

Revision History

Author	Description of Change	Revision Date
E. Mieland	• Added Accelerator Division responsibility and oversight for groundwater contamination at TEV service buildings. • Added technical appendix further describing service building groundwater contamination management.	December 2014
B. Fritz	Added Centers (D/S/C) to organizational structure references throughout the document. Included controlled document statement to footer. Various minor editorial changes throughout document.	September 2009

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1.0 INTRODUCTION

Polychlorinated biphenyls (PCBs) were manufactured primarily for dielectric oil used in electrical equipment such as transformers, capacitors, circuit breakers, electromagnets, and re-closers. PCBs were also used as a component in some hydraulic and heat transfer fluids. Because of their toxicity and persistence, the distribution in commerce of PCBs was severely restricted in 1979. This chapter describes Fermilab's program to ensure that PCBs are managed in compliance with applicable regulations and in a manner that protects human health and the environment. PCBs are regulated by the Toxic Substances Control Act (TSCA) and requirements pertaining to the manufacture, processing, use, storage, spill cleanup, and disposal of PCBs are found in 40 CFR Part 761.

The reclamation or disposal of any equipment or material containing measurable concentrations of PCBs (>1 ppm) shall be accomplished in accordance with the requirements of Chapter 8021 of this manual and be coordinated with the ESH&Q Section. This includes small PCB capacitors and those fluorescent light ballasts that contain small PCB capacitors or PCBs in the potting material.

2.0 DEFINITIONS

TSCA definitions are found in 40 CFR 761.3. A few definitions from § 761.3, abbreviated or annotated in some cases, that are particularly important:

Disposal – intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs or PCB items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs.

Fluorescent light ballast – a device that electrically controls a fluorescent light fixture and that includes a capacitor containing 0.1 kg (.22 lb.) or less of dielectric.

Leak – any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface.

PCB-contaminated equipment – transformers and other electrical equipment that contain ≥50 ppm PCBs, but <500 ppm PCBs. Pole-top transformers that were manufactured prior to July 2, 1979, or for which the date of manufacture is not known, are presumed to be in this category if they have not been tested (§ 761.2(a)(2)).

PCB transformer – any transformer that contains >500 ppm PCBs.

Small capacitor – a capacitor that contains <3 lb. of dielectric fluid, or has a total volume of <100 in3, or has a total volume of ≤200 in3 and weighs <9 lb. Large capacitor means a capacitor that contains ≥3 lb. of dielectric fluid, or has a total volume of >200 in3, or has a total volume ≥100 in3 and weighs ≥9 lb. A large capacitor that operates at 2,000 volts (A.C. or D.C.) or above is considered a large high voltage capacitor and may be used only in very limited circumstances (see § 761.30(l)(1)). In the absence of other data, capacitors manufactured prior to July 2, 1979, or whose date of manufacture is not known, must be assumed to contain ≥500 ppm PCB (§ 761.2(a)(4)).

3.0 RESPONSIBILITIES

3.1 Division/Section/Center Heads

Division/Section/Center (D/S/C) Heads shall ensure compliance with applicable regulations by developing and maintaining a program to:

- Identify and mark all equipment or materials containing PCBs in accordance with applicable requirements (40 CFR 761.40). Mark PCB waste with both PCB and IL Special Waste labels.

- Maintain an inventory of all PCB-containing equipment, including description (manufacturer, model, serial #), location, and quantity of PCBs (weight or volume and concentration).

- Expeditiously characterize any electrical equipment suspected to contain PCBs.

- Ensure that personnel who work with or are responsible for PCB-containing equipment are trained to comply with applicable requirements.

- Impose protective measures and containment, as practicable, to prevent or minimize human exposure and the impact of a release or spill of PCBs into the environment.

- Report any uncontrolled PCB spill or release into the environment to the Communications Center via the 3131 emergency telephone number and to the Senior Laboratory Safety Officer immediately upon discovery; report minor leaks to D/S/C environmental personnel or Senior Safety Officer. Clean up spills in accordance with 40 CFR 761, Subpart G. Spill cleanup must be performed by qualified (i.e., HAZWOPER-trained) employees or subcontractors.

- Ensure that property purchased by Fermilab is free of PCBs unless specifically approved by the Laboratory Director.

3.2 Accelerator Division

- Maintain protocols for the management of historical low-concentration PCB groundwater contamination at B1 and B4 Main Ring service buildings. See Technical Appendix 5.1 for further description.

- Coordinate with the ESH&Q Environmental Protection Group for notifications to regulatory agencies in the event of excavation of the affected areas.

3.3 Individuals Responsible for Managing PCB-containing Equipment

- Mark or attach a notation to PCB-containing equipment being removed from service indicating the date on which the item was removed from service; distinguish whether the item is intended for reuse or disposal.

- Facilitate prompt pick-up of all PCB waste by contacting the D/S/C waste coordinator. This should be done at the time the work is planned, if generation of PCB waste can be foreseen. Otherwise, contact the waste coordinator immediately upon generating PCB waste. This is critical, because PCB wastes may be stored locally in a labeled area for no longer than 30 days. A waste pickup request form must be filled out and submitted to the waste coordinator immediately upon generation of PCB waste (e.g., designating a PCB item as intended for disposal) to ensure that this deadline is met. The waste coordinator shall expeditiously arrange for pickup.

- Comply with the provisions of 40 CFR 761.35 for PCB items that are not in active use but still wanted as spares. These may be stored locally for a limited time as long as they have an identified use. However, if an equivalent non-PCB substitute is commercially available at reasonable cost, replacement and disposal of the PCB item is the preferred course of action. Once an item is no longer needed, it shall be marked with the date on which that decision was made. At this point, it becomes waste and is now in storage for disposal.

- Ensure that property sold, sent to surplus or transferred by Fermilab is free of PCBs unless specifically approved by the Laboratory Director.

3.4 Division/Section/Center ES&H Groups

- Train and provide guidance to personnel who work with or are responsible for PCB-containing equipment.

- Expeditiously arrange for transfer of generated PCB waste to the ESH&Q Section's Hazard Control Technology Team. In the event that PCB waste will be shipped off site

directly from the point of generation, coordinate the shipment with the Hazard Control Technology Team.

- Periodically inspect PCB-containing equipment to verify compliance with applicable requirements.

- Inform the ESH&Q Section's Hazard Control Technology Team of any proposed contract involving disposal of PCB-containing waste materials so that it may check the compliance status of the disposal facility.

3.5 ESH&Q Section Hazard Control Technology Team

- Collect, store and make arrangements for the disposal of PCB-containing waste material from D/S/C upon request, or coordinate the shipment for disposal of PCB waste material from the point of generation.

- Maintain historical records of Fermilab's Annual PCB Document Log (Fermilab's remaining PCB inventory no longer meets the threshold for production of this report).

3.6 ESH&Q Section Environmental Protection Group

- Coordinate PCB-related inspections of Fermilab by DOE or regulatory agencies.

- Coordinate communications with DOE and regulatory agencies regarding PCB issues, including any required spill reporting

4.0 REFERENCES

Toxic Substances and Control Act

Title 40, CFR, Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

Title 40, CFR, Part 302, Designation, Reportable Quantities, and Notification

Title 40, CFR, Part 117, Determination of Reportable Quantities for Hazardous Substances

Guidance Booklet on Storage And Disposal Of Polychlorinated Biphenyl (PCB) Waste, U.S. Department of Energy Office of Environmental Policy and Assistance, RCRA/CERCLA Division (EH-413), Washington, DC, November 1999, DOE/EH-413-9914

5.0 TECHNICAL APPENDIX

5.1 Restrictions Pertaining to Main Ring Service Buildings B1 and B4

The groundwater at Main Ring Service Buildings B1 and B4 is potentially contaminated with residual polychlorinated biphenyl (PCB). See area pictures below and as noted in the FESS Geographic Information System (GIS) Land Planning layer. U.S. EPA has given Fermilab permission to consider the residual PCB contamination at these locations as "disposed in place" pursuant to sampling and risk analysis. This permission is contingent upon Fermilab notifying EPA in writing, at least 10 days prior to excavating any soil or other material in the area where the contaminated groundwater exists. The Accelerator Division is the landlord division for B1 and B4 and has instituted protocols for the management of the affected areas.

Anyone intending to initiate excavation at either of these service buildings must first contact the Accelerator Division's ES&H Department's Senior Safety Officer (SSO) or Environmental Officer (EO) to arrange this notification. The notice to EPA must include the location and dimensions of the excavation. Responsible parties should allow at least two weeks in order to get the notice through the Fermilab and DOE Fermi Site Office approval process. In the event of an emergency requiring immediate excavation, the AD/ES&H SSO or EO should be notified immediately, preferably by contacting the Main Control Room, but in no case later than the morning of the next business day.

B-1 Service Building

B-4 Service Building